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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,269

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Stefan Hornung

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KENYON & KENYON LLP
ONE BROADWAY
NEW YORK, NY 10004

EXAMINER

SEMENENKO, YURIY

ART UNIT

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2841

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/538,269

Applicant(s)

HORNUNG ET AL.

Examiner

Yuriy Semenenko

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/10/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claims 12, 18 and 19 are objected to because of the following informalities:

1) claim 12: It is unclear what does it mean "the phase terminal is configured identically to one of the positive terminal". Is it meant to make from same materials or to have same shape or the terminal is situated relate to the device same as another terminal, or have same electrical potential or same voltage on its. "Is configured" of what kind of the parameter?

The claim language needs to be clarified.

2) claim 18: It is unclear how it could be recognized that the phase terminal already had rotated by 180° or had not yet in such limitation "the phase terminal being situated rotated by 180° relation about the terminal axis of the terminal lug"

The claim language needs to be clarified.

3) claim 19: "the position terminal" should be changed to – the positive terminal-
Appropriate correction is required.

Claim Rejections - 35 USC § 102

2.1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 13, 14, 15, 17, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe (Patent # JP-60101958) hereinafter Watanabe.

As to claim 11: Watanabe discloses in Fig. 3 a converter module, comprising: a positive terminal 1, a negative terminal 4, a phase terminal 2, a first semiconductor chip D_2 , Fig. 2 and a second semiconductor chip D_1 , the positive terminal 1, negative terminal 4, the phase terminal 2, the first semiconductor chip D_2 , and the second semiconductor chip D_1 being situated on top of one another in a stack; wherein at least one of the positive terminal, the negative terminal, and the phase terminal includes a contact plate 4A Fig. 4, a bar-shaped terminal lug 4 which is positioned asymmetrically on the contact plate, and an auxiliary element 1B, Fig. 6 which prevents the at least one of the positive terminal, the negative terminal, and the phase terminal from tilting about a longitudinal axis of the terminal lug, the auxiliary element being able to be detached after the converter module is assembled.

As to claim 13: Watanabe discloses the converter module as recited in claim 11, wherein the bar-shaped terminal lug 1, Fig. 4 is situated offset with respect to a plane created by the contact plate 1A.

As to claim 14: Watanabe discloses the converter module as recited in claim 13, wherein at least two of the positive terminal 1, the negative terminal 4, and the phase terminal 2 includes a respective bar-shaped terminal lug 1A and 4A, each bar-shaped terminal lug being situated offset so that the respective terminal lugs may be brought out from the converter module on a same level (see Fig. 3).

As to claim 15: Watanabe discloses the converter module as recited in claim 11, wherein the converter module is situated in an injection molded plastic housing 5 (Abstract).

As to claim 17: Watanabe discloses in Fig. 7 and 8 a line of multiple single-phase converter modules, comprising: a plurality of converter modules, each of the converter modules including a positive terminal 1, a negative terminal 4, a phase terminal 2, a first

semiconductor chip D₂, Fig. 2 and a second semiconductor chip D₁, the positive terminal 1, negative terminal 4, the phase terminal 2, the first semiconductor chip, and the second semiconductor chip being situated on top of one another in a stack; wherein at least one of the positive terminal, the negative terminal, and the phase terminal includes a contact plate 4A, Fig. 4 a bar-shaped terminal lug 4 which is positioned asymmetrically on the contact plate, and an auxiliary element 4B, Fig. 6 which prevents the at least one of the positive terminal, the negative terminal, and the phase terminal from tilting about a longitudinal axis of the terminal lug, the auxiliary element being able to be detached after the converter module is assembled.

As to claim 18: Watanabe discloses a method for manufacturing a converter module, comprising: providing a positive terminal 1, Fig. 3, a negative terminal 4, a phase terminal 2, a first semiconductor chip D₂, Fig. 2 and a second semiconductor chip D₁, at least one of the positive terminal, the negative terminal, and the phase terminal having a contact plate 4A Fig. 4, a bar-shaped terminal lug 4 which is positioned asymmetrically on the contact plate, and an auxiliary element 1B, Fig. 6 which prevents the at least one of the positive terminal, the negative terminal, and the phase terminal from tilting about a longitudinal axis of the terminal lug;

stacking the positive terminal 1, negative terminal 4, the phase terminal 2, the first semiconductor chip D₂, and the second semiconductor chip D₁ on top of one another in a joining device, the phase terminal 2 being situated rotated by 180° relation about the terminal axis of the terminal lug, Fig. 4; and encapsulating the stack in an injection molded housing (Abstract).

As to claim 20: Watanabe discloses a method for manufacturing a converter module wherein the positive terminal 1, Fig. 4 or the negative terminal 4 and the phase terminal 2 are identical parts which are inserted into the joining device rotated by 180°, Fig. 4

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2.2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 11, 16, 17, 18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Spitz et al. (Patent # US 6774476) hereinafter Spitz.

The applied reference has a common inventor Peter Urbach and Assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As to claim 11: Spitz discloses in Fig. 2 a converter module 1, 2, comprising: a positive terminal 20 (B+), a negative terminal 15 (B-), a phase terminal 18 (U), a first semiconductor chip and a second semiconductor chip, the positive terminal, negative terminal, the phase terminal, the first semiconductor chip, and the second semiconductor chip being situated on top of one another in a stack; wherein at least one of the positive terminal, the negative terminal, and the phase terminal includes a contact plate 18, a bar-shaped terminal lug 19, Fig. 5 which is positioned asymmetrically on the contact plate 18, and an auxiliary element 34 which prevents the at least one of the positive terminal, the negative terminal, and the phase terminal from tilting about a longitudinal axis of the terminal lug, the auxiliary element being able to be detached after the converter module is assembled.

As to claim 17: Spitz discloses in Fig. 7 a line of multiple single-phase converter modules comprising: a plurality of converter modules (B+, B-, U) and (B+, B-, V), each of the converter modules including a positive terminal 20 (B+), a negative terminal 12 (B-), a phase terminal 18, 19 (U), a first semiconductor chip 15 and a second semiconductor chip 15, the positive terminal, negative terminal, the phase terminal, the first semiconductor chip, and the second semiconductor chip being situated on top of one another in a stack; wherein at least one of the positive terminal, the negative terminal, and the phase terminal includes a contact plate 19, a bar-shaped terminal lug 19, Fig. 4 and 5 which is positioned asymmetrically on the contact plate 18, and an auxiliary element 34, Fig. 5 which prevents the at least one of the positive terminal, the negative terminal, and the phase terminal from tilting about a longitudinal axis of the terminal lug, the auxiliary element being able to be detached after the converter module is assembled.

As to claim 18: Spitz discloses a method for manufacturing a converter module 1, 2, Fig.2 comprising: providing a positive terminal 20 (B+), a negative terminal 12 (B-), a phase terminal 18, 19 (U), a first semiconductor chip 15 and a second semiconductor chip 15, at least one of the positive terminal, the negative terminal, and the phase terminal having a contact plate 18, a bar-shaped terminal lug 19, Fig. 4, 5 which is positioned asymmetrically on the contact plate 18, and an auxiliary element 34, Fig. 5 which prevents the at least one of the positive terminal, the negative terminal, and the phase terminal from tilting about a longitudinal axis of the terminal lug; stacking the positive terminal 20, Fig. 2, negative terminal 20, the phase terminal 18,19, the first semiconductor chip 15, and the second semiconductor chip 15 on top of one another in a joining device, the phase terminal being situated rotated by 180° relation about the terminal axis of the terminal lug; and encapsulating the stack in an injection molded housing (column 7, lines 37-57).

As to claims 16 and 19: Spitz discloses The converter module as recited in claim 11(18), wherein the auxiliary element 34, Fig. 5 has a positioning aperture 35 for positioning the auxiliary element in a joining device.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3.1 Claims 12, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe as applied to claims 11 and 18 above, and further in view of Irmmler (Patent #WO-7900814) hereinafter Irmmler.

As to claims 12, 16 and 19: Watanabe discloses the converter module as recited in claim 11 (18),

except, Watanabe doesn't explicitly teach the phase terminal is configured identically to one of the positive terminal 22 or the negative terminal 23; and at least one of the position terminal, the negative terminal and the phase terminal is positioned in the joining device using an aperture provided in the auxiliary element.

Irmeler teaches in Fig. 1 the phase terminal 24, Fig. 1 is configured identically to one of the positive terminal 22 or the negative terminal 23; and at least one of the position (positive) terminal, the negative terminal and the phase terminal is positioned in the joining device using an aperture provided in the auxiliary element (see Fig. 1 and 4).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made, for Watanabe to include in his invention that the phase terminal is configured identically to one of the positive terminal or the negative terminal; and at least one of the position terminal, the negative terminal and the phase terminal is positioned in the joining device using an aperture provided in the auxiliary element in order to provide connection to electrical circuit.

Relevant Art

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rohsler et al. – US 4642671; Terasawa- US 3978513;
Bones et al. – PGPub. 2007/0165376.


5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuriy Semenenko whose telephone number is (571) 272-6106. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A. Reichard can be reached on (571)- 272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YS


DEAN A. REICHARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800
1/26/07